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**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Docket Number (Optional)

HOE-767

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on June 29, 2009Signature Carol PrenticeTyped or printed name Carol Prentice

Application Number

10/626,834

Filed

July 21, 2003

First Named Inventor

Virgin, et al.

Art Unit

2836

Examiner

L. Thomas

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

See Summary of Arguments  
for Pre-Appeal Brief  
Review Conference

I am the

☐ applicant/inventor.☐ assignee of record of the entire interest.  
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.  
(Form PTO/SB/96)☒ attorney or agent of record.  
Registration number 37,886☐ attorney or agent acting under 37 CFR 1.34.

Registration number if acting under 37 CFR 1.34 \_\_\_\_\_

Signature

Douglas M. McAllister

Typed or printed name

203-459-0200

Telephone number

June 29, 2009

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.  
Submit multiple forms if more than one signature is required, see below\*.

☒ \*Total of 1 forms are submitted.

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Virgin, et al.

Application No.: 10/626,834

Filed: July 21, 2003

For: **LINE ARRANGEMENT FOR ELECTRICAL SYSTEMS OF VEHICLES**

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
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Signature: *Carol Prentice*  
Carol Prentice

**SUMMARY OF ARGUMENTS**  
**FOR PRE-APPEAL BRIEF REVIEW CONFERENCE**

Dear Sir:

This Summary of Arguments is being filed together with a Notice of Appeal, a Pre-Appeal Brief Request for Review, and a Petition for a three-month extension of time in connection with the final Office Action mailed on January 7, 2009 and the Advisory Action mailed on May 21, 2009.

Background

Claims 40, 41, 43-82, 84-86, and 88 are pending.

Applicants filed a Response After Final to the final Office Action on May 8, 2009 (mailed May 5, 2009) which is incorporated herein and made a part hereof by reference ("Applicants' Response"). The Examiner mailed an Advisory Action maintaining the rejections set forth in the final Office Action on May 21, 2009.

Claims 40, 41, 43-82, 84-86, and 88 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Thrash (US 5,801,914) in view of Saito (US 6,243,018).

Applicants respectfully traverse these rejections in view of the following comments.

Discussion of Rejections in View of Thrash and Saito

The Examiner relies on column 2, lines 1 to 10 of Thrash which indicate that the device of Thrash could be implemented in all types of electrical circuits and electrical devices (Office Action, page 4). However, such a general remark cannot be considered to be a disclosure that the device of Thrash can be successfully adapted for use in a vehicle in which the power line in the cable is at a positive potential and the body of the car is at ground potential, as is the case with Applicants' claimed invention. It is respectfully submitted that the device of Thrash cannot be used for protection against parallel arcs to an external ground, such as the body of a vehicle.

In particular, Thrash is limited to an arc within the heating element 12, as according to Thrash one conductor in the heating element is at a positive potential and the other conductor in the heating element is a ground (See Figure 3). Any other interpretation is not justified by the disclosure of Thrash. The Examiner is correct that Thrash mentions an arc due to a break in either conductor 28 or 30 (Col. 6, lines 33 to 59). However, such an arc is not a parallel arc to an external ground (such as the body of a motor vehicle) as claimed by Applicants. The arc disclosed in Thrash is a serial arc (an arc that occurs between broken ends of the same conductor line along the path of that conductor line - as defined, e.g., at page 17, lines 4-9 of Applicants' specification, and as shown at reference numeral 28' of Applicants' Figure 2). Thus, Thrash is designed to detect an arc occurring between a break in either of the conductors 28 and 30, which would be the classical example of what is considered to be a "serial arc." The limitation to serial arcs in Thrash is due to the fact that the detector line runs along the power lines so that a serial arc will heat the detector line and cause the described damage. However, the detector line of Thrash is not adapted to react in the same way to a parallel arc to an external ground, as such a parallel arc will extend radially from the power line and can therefore be located on a side opposite to the detector line 34 so that the detector line is protected by the PTC material 26 of Thrash, which will "shield" the detector line 34 from being affected by such a parallel arc (as shown for example in the marked up copy of Fig. 2 of Thrash attached as Appendix 1 to Applicants' Response). As a result, Thrash is not able to properly detect or react to a parallel arc to an external ground, since a parallel arc as shown in Appendix 1 would not cause any heating in the area of the detector line 34 sufficient to break the detector line. In order to detect such a parallel arc as shown in Appendix 1, Thrash would have to arrange the detector line 34 as claimed by Applicants (e.g., with successive

windings surrounding the supply line over an extent of the supply line). In contrast, in Thrash the detector element 34 runs parallel to the conductor 28 and 30 throughout the length of the heating element. Thrash does not disclose or suggest a detector element surrounding a supply line, as acknowledged by the Examiner (Office Action, page 4).

It is respectfully submitted that Thrash discloses a concept which is not adaptable to the detection of parallel arcs to the body component of a vehicle, as claimed by Applicants. Further, as the device of Saito is not directed towards the detection of any type of arc, Saito does not cure the deficiencies of Thrash noted above.

The Examiner relies on Saito for disclosing a detector element with successive windings around a supply line. Saito does disclose a detector line 2 which surrounds conductor wires 3, 4, and 5. However, the combination of Thrash and Saito would not result in a device which would be able to detect a parallel arc from an inner conductor to an external ground such as the body of a motor vehicle. Saito discloses detecting a potential change due to a short between the detector line 2 and ground when the insulating layer is damaged. In Thrash, excessive heat from a serial arc between broken ends of the same conductor causes the detector line 34 to break. The concept of Saito would be inoperable if the detector line was broken due to the occurrence of an arc, since if the detector line 2 breaks, then a potential change of the detector line cannot be detected or monitored. If one of ordinary skill in the art were to combine the teachings of Thrash and Saito, it is respectfully submitted that they would arrive at a device with two detector lines, a first detector line for detecting a serial arc which breaks from heat cause by the serial arc as in Thrash, and a second detector line surrounding both the conductor wires and the first detector line for detection of a short between the second detector line and an external ground via a change in the potential of the second detector line. Such a device would be unable to detect a parallel arc from an inner conductor to an external ground (e.g., a motor vehicle body).

Applicants respectfully submit that one skilled in the art would not have combined the teachings of Thrash and Saito, as doing so would be to combine two entirely different concepts: one being based on the breaking of the detector line (Thrash) and the other being based on the maintaining the integrity of the detector line (Saito). Thus, the combination of Thrash and Saito does not disclose or remotely suggest the detection of a parallel arc between a current carrying inner conductor and a body component of a vehicle as set forth in independent claims 40, 81, 82, 84, 85 and 88.

In addition, Applicants' independent claims 81 and 82 specify the use of two detector elements. Saito does disclose the use of two detector elements 14, 22. However, both of these detector elements operate in the same manner to detect a short between the detector element and ground via a change in the potential of the detector element 14, 22, and do not act to detect a parallel arc from one of the inner wires 3, 4, 5 to ground. Thus, the combination of Thrash and Saito does not disclose or remotely suggest the use of two detector elements, each of which detects a parallel arc from a current carrying inner conductor to the body of a motor vehicle (i.e., an external ground).

With regard to Applicants' independent claim 84, it is noted that the Examiner has apparently overlooked that claim 84 specifies a carrier strip on which the detector line is held. Neither Thrash nor Saito discloses or suggests a detector line held on a carrier strip as set forth in Applicants' claim 84.

In support of the rejection of claims 85 and 86, the Examiner indicates that Thrash states "the stranding of the stainless steel is small enough that heat will cause the conductive fibers 34 to sever before the blanket fabric can be ignited" (Advisory Action, page 2). The Examiner's reliance on this section of Thrash underscores the Examiner's basic misunderstanding of Applicants' claim language, as this is contrary to what is set forth in Applicants' claims 85 and 86. With Applicants' claims 85 and 86, the detector element comprises a carrier (claim 85) or carrier strip (claim 86) and a detector line (claim 85) or detector track (claim 86), where the carrier/carrier strip is deformed under the effects of an arc from the inner conductor and the deformed carrier strip/track is what acts on the detector line/detector track to change its optical or electrical property. The Examiner has acknowledged that the polyester yarn of Thrash comprises a carrier and the stainless steel strands comprise a detector line (Final Office Action, page 10). However, in Thrash, heat from a serial arc between broken ends of the same conductor directly causes the stainless steel fibers (i.e., the detector line) to break, and the stainless steel fibers are not caused to break by any effect of the carrier (polyester yarn) acting on the fibers. In Thrash, it is disclosed that the polyester yarn melts at 256 degrees Celsius and the stainless steel detector line melts at 1500 degrees Celsius. Thus, melting of the polyester does not cause a change in the detector line (Col. 4, lines 33-38). Accordingly, Thrash does not disclose or suggest that a change in the carrier (polyester yarn) for the detector line causes a change in the detector line (as set forth in Applicants' claims 85 and 86). Rather, in Thrash, the interruption of the stainless steel fibers is due to heat acting

directly on the fibers and not due to the melting of the carrier (since the stainless steel fibers melt at a significantly higher temperature than the polyester carrier does).

In addition, neither Thrash nor Saito discloses or suggests a detector element comprising a carrier strip and a carrier track applied to the carrier strip, or that a carrier strip exerts mechanical forces on the track and thus changing a property of the track, as set forth in Applicants' claim 86.

As discussed above, Applicants' independent claim 88 refers an optical property of the detector element that is changed due to an arc from the inner conductor. The Examiner takes the position that the detector element 34 of Thrash is a conductive fiber having an optical property. It is respectfully submitted that Thrash does not disclose or remotely suggest any change in an optical property of a detector line. The detector element 34 of Thrash is a stainless steel fiber which does not have any optical properties (i.e., it is not disclosed as being a stainless steel fiber optic tube).


Applicants respectfully submit that the present invention would not have been obvious to one skilled in the art in view of Thrash in combination with Saito or any of the other prior art of record.

Withdrawal of the rejections under 35 U.S.C. § 103(a) is therefore respectfully requested.

#### Conclusion

Reconsideration and allowance of this application at a Pre-Appeal Brief Review conference is respectfully requested. If there are any remaining issues that need to be addressed in order to place this application into condition for allowance, the Examiner is requested to telephone Applicants' undersigned attorney.

Respectfully submitted,



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**ATTORNEY DOCKET NO.: HOE-767**

Date: June 29, 2009